WHAT IS CLAIMED IS:

1. A composite catheter comprising:

an outer member comprising a proximal end, a distal end, and an outer member body defining an outer member lumen; and

an inner member comprising a proximal end, a distal end, and an inner member body defining an inner member lumen, wherein the inner member is interposed within the outer member lumen so as to define an interstitial space between the inner member and the outer member, and wherein the inner member lumen defines a drug delivery conduit suitable for delivery of a drug from the inner member proximal end to the inner member distal end.

2. The composite catheter of claim 1, wherein the inner member defines at least two drug delivery conduits.

3. The composite catheter of claim 1, wherein the catheter comprises at least two inner members.

4. The composite catheter of claim 1, wherein the inner member body comprises a substantially impermeable material.

5. The composite catheter of claim 4, wherein the material of the inner member body is selected from the group consisting of a polymer, metal, glass, a polyolefin, nylon, polyethylene terephtholate, urethane, a fluorenated polymer, poly(methyl)methacrylate, polyvinylidine chloride, laminous hydrophilic polymer, laminous hydrophobic polymer, acrylonitrile, nickel titanium, superelastic nickel titanium, and laminates of hydrophilic and hydrophobic polymers.

6. The composite catheter of claim 1, wherein the outer member body comprises a substantially biocompatible material.

7. The composite catheter of claim 6, wherein the material of the outer member body is selected from the group consisting of silicone, polyethylene, an ethylene vinyl acetate copolymer, a polyvinylchloride, polymethylmethacrylate, polyethylmethacrylate, polymethacrylate, ethylene glycol dimethacrylate, ethylene dimethacrylate, hydroxymethyl methacrylate, polyurethane, polyvinylpyrrolidone, 2-pyrrolidone, polyacrylonitrile butadiene, a polycarbonate, polyamides, a fluoropolymers, a polystyrene, a styrene acrylonitrile homopolymer, a styrene acrylonitrile copolymer, cellulose acetate, an acrylonitrile butadiene styrene homopolymer, acrylonitrile butadiene styrene copolymer, polyvinylchloride, silicone rubber, polymethylpentene, a polysulfone, a polyester, a polyimide, polyisobutylene, polymethylstyrene, a polyvinyl chloride elastomer, a polyolefin homopolymeric elastomer, a polyolefine copolymeric elastomer, a urethane-based elastomer, a natural rubber, and a synthetic rubber.

8. The composite catheter of claim 1, wherein the catheter further comprises a support member positioned within the interstitial space.

9. The composite catheter of claim 8, wherein the support member comprises a material selected from the group consisting of metal, a metal alloy, carbon fiber, a polycarbonate, a polymer, plexiglass, stainless steel, parylene-coated stainless steel, Teflon-coated stainless steel, and nickel titanium.

10. The composite catheter of claim 8, wherein the support member is a compression support member.

11. The composite catheter of claim 10, wherein the compression support member is slidable within the interstitial space.

12. The composite catheter of claim 8, wherein the support member is a tensile support member.

13. The composite catheter of claim 1, wherein the interstitial space comprises a liquid, solid, semi-solid, or pressurized gas.

14. The composite catheter of claim 1, wherein the interstitial space comprises an antimicrobial agent.

15. The composite catheter of claim 1, wherein the inner member and the outer member are of different lengths.

16. The composite catheter of clam 1, wherein the catheter further comprises an distal extension at a distal end of the catheter.

17. The composite catheter of claim 16, wherein the distal extension is flexible relative to a proximal portion of the catheter.

18. The composite catheter of claim 16, wherein the distal extension is an extension of the outer member distal end.

19. The composite catheter of claim 16, wherein the distal extension is substantially hollow, and wherein the inner member lumen and a lumen defined by the distal extension form a drug delivery conduit.

20. The composite catheter of claim 16, wherein the distal extension defines an opening that provides a drug delivery outlet.

21. The composite catheter of claim 20, wherein the drug delivery outlet is defined in a sidewall of the distal extension.

22. The composite catheter of claim 16, wherein the inner member lumen terminates in a drug delivery outlet at a sidewall of the catheter proximal to the distal extension

23. The catheter of claim 1, wherein the inner member lumen is suitable for delivery of drug at a low volume rate.

24. The catheter of claim 1, wherein the inner diameter of the inner member lumen is from about 0.001" to 0.025".

25. The catheter of claim 1, wherein the catheter has an outer diameter of from about 0.030" to 0.060".

26. The catheter of claim 1, wherein the catheter further comprises a radiopaque marker.

27. The catheter of claim 1, wherein the catheter comprises a valve at a catheter distal end

28. The catheter of claim 1, wherein the catheter comprises an attachment element for attaching a drug delivery device to the catheter.

29. A drug delivery system comprising:
the composite catheter of claim 1, and
a drug delivery device;

wherein the drug delivery device is attached to the catheter to facilitate delivery of a drug from the drug delivery device and through the inner member lumen of the composite catheter.

30. The drug delivery system of claim 29, wherein the catheter is detachably attached to the drug delivery device.

31. The drug delivery system of claim 29, wherein the drug delivery device is a convective drug delivery device.

32. The drug delivery system of claim 29, wherein the drug delivery device is a diffusive drug delivery device.

33. The drug delivery system of claim 29, wherein the drug delivery device facilitates controlled release of drug at a volume rate of from about 0.01 μl/day to about 200 μl/day.

34. A method for delivery of a drug to a treatment site in a subject, the method comprising the step of:

implanting the composite catheter of claim 1 into a subject, wherein said implanting provides a drug delivery pathway from a proximal end of the catheter, through the inner member lumen to a distal end of the catheter, and out a drug delivery outlet positioned at a treatment site in a subject; and

introducing a drug into the inner lumen of the catheter;

wherein the drug is delivered to the treatment site in the subject.

35. The method of claim 34, wherein the inner member lumen is suitable for delivery of the drug at a low volume delivery rate.

36. The method of claim 35, wherein the low volume delivery rate is from about 0.01 μl/day to about 200 μl/day.

37. The method of claim 34, wherein the catheter is substantially filled with the drug prior to implanting.

38. The method of claim 34, wherein the catheter further comprises a distal extension at the distal end of the catheter, wherein the distal extension is flexible.

39. The method of claim 34, wherein the treatment site is subcutaneous, percutaneous, intravenous, intrathecal, intramuscular, intra-arterial, intravascular, intraperitoneal, intraspinal, epidural, intracranial, intracardial, peritumoral, or intratumoral.

40. The method of claim 35, wherein the treatment site is a site within a kidney, liver, pancreas, heart, lung, eye, ear, lymph node, breast, prostate, ovary, testicle, thyroid, spleen, central nervous system, skeletal muscle, bone, lymph vessel, artery, arteriole, capillary bed, blood vessel, vein, peripheral nervous system, digestive system, gastrointestinal tract, urinary bladder, gall bladder, adrenal gland, adipose tissue, parathyroid gland, uterus, fallopian tube, skin, tumorous growth, autologous graft, synthetic graft, or site of microbial infeciton.